



El Forn landslide (Andorra), an example of geological risk management in large sliding inhabited areas

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El Forn landslide is one of the largest landslides in the Pyrenean area. Until 2009 it had not been thoroughly studied or characterized, so the existence of movements and their evolution (residual deformation, potential acceleration, more or less active areas, etc.) are not well known. This poster presents the monitoring of a large active inhabited landslide from the Middle Ages, situated in the Andorran Pyrenees and its associated risk management. In 2000, the Government of Andorra initiated several actions to manage the risk associated with large slides, with an initial zoning of the territory in relation to different natural hazards (large landslides, rock falls, debris flows and shallow landslides). In 2002, works consisted of drawing a map of buildable area located in El Forn landslide based on knowledge gained from a detailed study of the area. In 2007 work began on instrumentation that last until early 2009 in order to characterize the materials that are part of the landslide (through borehole of 200 meters deep) and equip the boreholes with inclinometers, rod extensometers and wire vibrating piezometers. Today, ongoing periodic readings of the instruments with the aim of identifying areas of greater movement and activity. We know that have its characteristics (speed, size, etc.) must wait several years due the low velocity movement of El Forn landslide (calculated between few mm/year to 1 cm/year).

Also, with information obtained from the different monitoring campaigns may be determined more accurately the most active and more capable of recovery within the landslide in order to propose actions to mitigate the associated risk, and if necessary, alert authorities to evacuate the area in case of emergency. With regular monitoring of landslide movement is expected to have an essential element in determining when and how to activate an Early Warning System, EWS.